

REMARKS

Claims 35-49 are pending in this application of which claims 35 and 41 are independent. Applicants acknowledge with appreciation the allowance of claims 41-49. Claims 35-39 are rejected, and claim 40 has been objected to. For the following reasons, it is submitted that this application stands in condition for allowance.

Claim 35 has been amended to recite "sintering the compact at a temperature of from 600°C to 900°C." Support can be found in the specification, e.g., in Table 2. No new matter has been entered.

The Examiner has rejected claims 35-39 under 35 U.S.C. § 103(a) as being unpatentable over Zedalis et al. in view of newly-cited Weaver (U.S. Patent No. 4,104,062). Objection has been made to claim 40, indicated as being allowable if appropriately rewritten in independent form. The rejection is respectfully traversed.

In the previous response, Applicant advocated that Zedalis fails to disclose a non-oxidizing atmosphere to sinter aluminum/silicon carbide composites. It appears that Examiner agreed, but now rejects claims 41-49 in view of Weaver, which allegedly teaches use of an essentially oxygen-free gas (col. 3, lines 49-54) or a nitrogen gas (col. 4, lines 53-55) while sintering aluminum/metal carbides. To the contrary, the combination of the references fails to teach claim 35.

Zedalis relates to a process for producing aluminum composite with a reinforcing phase for improving the mechanical properties of the resultant composite. (See col. 1:13-16). Specifically, "the resultant composite compact is vacuum hot pressed or otherwise treated under conditions typically employed for the matrix material, the conditions being

such that no significant melting of the matrix occurs." "Generally, the consolidation step is carried out at a temperature ranging from about 20 to 600°C, and preferably from about 250°C to 550°C, the temperature being below the solidus temperature of the metal matrix." (See col. 4:54-66).

Weaver relates to a process for fabricating high-density, high-strength boron carbide-aluminum composite artifacts or products. (See cols. 1:67 - 2:1). The steps include blending and cold-pressing composite powders to form a mold and wetting the mold. Next, the mold is volatilized with heat "as high 200°C" and then pressed. (See cols. 2:61 - 3:31) During pressing, the temperature is "rapidly brought up between 1800°-2300°C while simultaneously flushing an essentially free O₂ gas through the apparatus and incrementally applying pressure until said pressure reaches at least 500 psi." (See col. 3:49-54). Weaver states that "products formed in this manner are dense, strong and wear resistant..." (See col. 4:7-8).

The Examiner acknowledges that Zedalis is silent with regard to the sintering atmosphere, but asserts that one of ordinary skill in the art "would look in the same field of endeavor [(Weaver)] for the purpose of supplying a non-oxidizing atmosphere to sinter aluminum/metal carbides" because it would have been obvious to use such an atmosphere "in order to provide for a non-oxidizing atmosphere." Applicants disagree.

The Examiner has not established motivation to combine. A motivation to combine is something that makes a positive suggestion, either as to the precise combination urged or that a particular invention would likely be successfully used in the environment of the combination urged. Contrary to this tenet, the Examiner simply asserts that because Weaver disclosing a non-oxidizing atmosphere, it would have been obvious "in order to provide for

a non-oxidizing atmosphere." This statement does not provide any reason why one of ordinary of skill in the art would be motivated to make the suggested combination. Just because Weaver uses a non-oxidizing atmosphere, does not make it obvious to use a non-oxidizing atmosphere in Zedalis. In other words, the mere fact that references may be in the same field of endeavor does not render the resultant combination obvious unless the prior art also suggests desirability of the combination, which the Examiner has failed to establish. The Examiner's burden has not been satisfied.

Moreover, Weaver supplies a substantially free O₂ gas simultaneous while pressing (not sintering) the mold at a temperature between 1800°-2300°C. It is understood that use of a substantially free O₂ gas during this step prevents the jig from being destroyed by its own oxidation when under great pressure. (See col. 3:54-68). There is no teaching rendering it obvious to use a non-oxidizing atmosphere as used during the pressing step at extreme temperatures (above and beyond temperatures for sintering) in the sintering step of Zedalis.

Also, amended claim 35 recites sintering the compact at a temperature of from 600°C to 900°C. Weaver fails to disclose a sintering step in the claimed temperature range.


It is submitted that the Examiner has failed to meet an Examiner's burden of proof for establishing motivation to combine, and the combination would not have been obvious for the foregoing reasons. Withdrawal of the rejection is respectfully solicited.

If the Examiner has any questions regarding this response or the application in general, the Examiner is encouraged to contact the undersigned to expedite prosecution of this case.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "David M. Tennant", with a long horizontal flourish extending to the right.

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